

REMARKS

Favorable reconsideration and allowance of this application are respectfully requested.

Claims 1, 2, 4-8, 10, and 12 have been amended, while claims 3, 9, 11, and 19-21 have been cancelled without prejudice. Claims 14-18 remain cancelled. New claims 22-30 have also been added. Accordingly, claims 1, 2, 4-8, 10, 12, 13, and 22-30 are currently under consideration. No new matter has been introduced by these amendments.

Independent claim 1 has been amended to require that the composite material is composed of polycrystalline ultrahard grains in which the ultrahard grains are contiguous with each other throughout the composite material. Support for this amendment is found at, for example, pages 8 and 9, and Figures 1 and 2, of the application as filed. Applicants point out that claim 1 possesses a scope broader than the core-shell (i.e., coated) particle embodiment depicted in Figures 1 and 2. Applicants are entitled to the broader scope delineated in instant claim 1, as amended, because the specification makes clear that the composite material is not limited to the arrangement depicted in Figures 1 and 2. For example, whereas Examples 1 and 2 describe the preparation of a composite material containing coated (i.e., core-shell type) grains contiguous to each other throughout the composite material (as depicted in Figures 1 and 2), Example 3 describes the preparation of a composite material containing uncoated particles (i.e., not of the core-shell type of particles depicted in Figures 1 and 2).

New independent claim 22 is directed to a composite material having a core-shell embodiment as depicted in Figures 1 and 2 of the application as filed. New claims 23-30 (all of which ultimately depend from claim 22) correspond to claims 2, 4, 5, 6, 7, 8, 10, and 12, respectively, all of which depend from claim 1.

In the Office Action, the Examiner continues to maintain that claims 1-7, 9-13 and 19-21 are allegedly anticipated under 35 U.S.C. §102(b) by U.S. Patent No. 6,454,027 to Fang et al. (i.e., "Fang et al."). In particular, the Examiner does not consider, in this instance, the amended transitional phrase "consisting essentially of", as incorporated in the claim in the previous amendment, to be of different scope than the phrase "comprising". The Examiner essentially contends that there is no guidance in the claims or the specification on what components the phrase "consisting essentially of" may exclude.

However, without conceding that the Examiner's determination on this issue is correct or proper, and in an effort to expedite allowance of the claims, Applicants have decided at this time to revert to the previous "comprising" transitional phrase, and, as discussed above, amend claim 1 to be in conformity with preferred embodiments of the invention described on pages 8 and 9, and Figures 1 and 2, and Examples 1-4 of the application as filed. In these preferred embodiments, the polycrystalline ultrahard particles (e.g., of diamond (PCD) or cubic boron nitride PCBN)) are bonded directly to each other, and thus, are contiguous with each other.

In direct contrast to the instant claims, as amended, Fang et al. consistently teach a composition in which ultrahard grains of PCD and/or PCBN are distributed within a matrix of a cermet material composed of a carbide (e.g., tungsten carbide). See, for example, the Abstract of Fang et al. A cermet material, such as tungsten carbide, is not an ultrahard material. Moreover, in further contrast to an ultrahard material, Applicants note that the cermet matrix material of Fang et al. contains a cementing agent that is relatively softer and ductile (e.g., col. 5, lines 14-18 and col. 7, lines 34-45, and claim 1 of Fang et al.). Significantly, Fang et al. teach that the ultrahard grains are substantially surrounded by the cermet material (e.g., Abstract, col. 6, lines 53-62, and

Figures 1, 2, and 8 of Fang et al.), wherein the cermet material substantially separates the ultrahard grains (e.g., col. 3, lines 8-11 of Fang et al.).

Therefore, Applicants have shown that the claims, as amended, are clearly not anticipated by Fang et al. Accordingly, Applicants respectfully request that the 35 U.S.C. §102(b) rejection of the claims over Fang et al. be withdrawn.

The Examiner has also rejected claim 8 as allegedly rendered obvious under 35 U.S.C. §103(a) in view of Fang et al. However, Applicants have already shown above that Fang et al. consistently teach a composite material with features completely contrary to the structure delineated by the instant claims, as amended, i.e., the consistent teaching in Fang et al. of the inclusion of a non-ultrahard (i.e., cermet) material which substantially surrounds and substantially separates ultrahard grains. Therefore, Fang et al. also clearly fails to suggest the claimed invention.

Moreover, in column 8, lines 14-25 of Fang et al. is taught that it is deleterious for the ultrahard grains to be in contact (i.e., contiguous) with each other. Applicants quote the indicated passage of Fang et al. as follows:

Using greater than about 80 percent by volume of the first region granules may not be desired for certain demanding applications because it: (1) increases the contiguity between PCD granules to a level causing macro chipping and reducing impact and spalling resistance (wherein contiguity measures the degree of granule to granule contact, and the greater the degree of contiguity the higher the number of contacts between PCD granules); and (2) reduces the amount of the second region material present in the composite to an ineffective amount necessary to provide desired mechanical properties of fracture toughness and chipping resistance for the same types of demanding applications.

As shown by the above passage of Fang et al., Fang et al. not only do not teach or suggest the subject matter of the claims, as amended, but strongly teach against the instant claims,

as amended. Therefore, Applicants have shown that Fang et al. do not render obvious the claims as amended. Accordingly, Applicants respectfully request that the 35 U.S.C. §103(a) rejection of claim 8 over Fang et al. be withdrawn.

In view of the foregoing amendments and remarks, it is firmly believed that the present application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



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